

# "LEVERAGING K-MEANS CLUSTERING FOR BUSINESS INSIGHTS"

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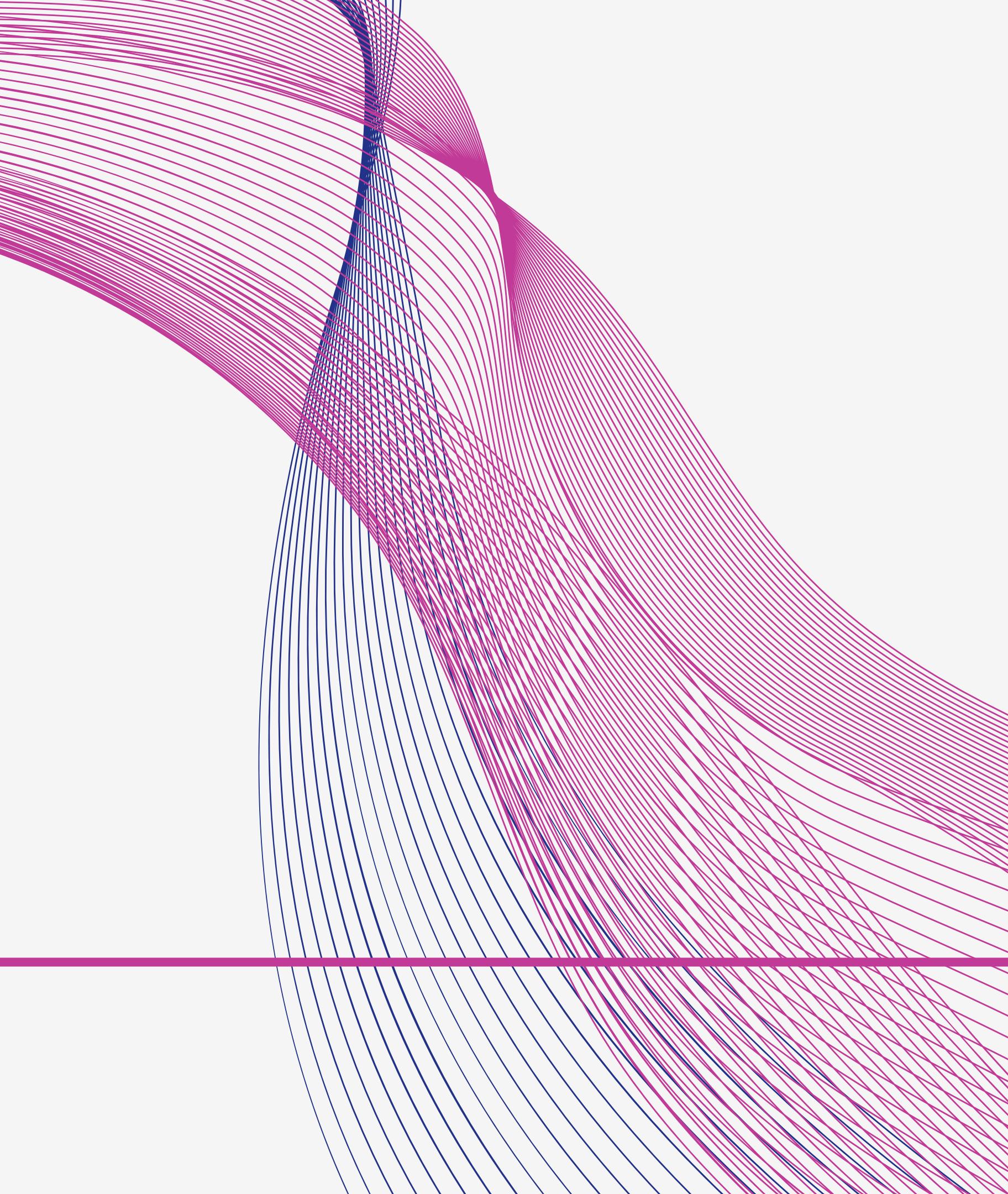
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# INTRODUCTION TO CLUSTERING

- WHAT IS CLUSTERING?
  - IMPORTANCE OF CLUSTERING FOR BUSINESS OWNERS
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# Dataset OVERVIEW

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THE WHOLESALE PRODUCT DATASET CONTAINS CUSTOMER PURCHASE DATA, AND USING K-MEANS CLUSTERING, WE CAN GROUP SIMILAR CUSTOMERS BASED ON THEIR BUYING BEHAVIOR. THIS SEGMENTATION ENABLES BUSINESSES TO UNDERSTAND CUSTOMER PREFERENCES, OPTIMIZE INVENTORY MANAGEMENT, AND CREATE TARGETED MARKETING CAMPAIGNS FOR DIFFERENT CUSTOMER GROUPS. BY EMPLOYING A DATA-DRIVEN APPROACH, BUSINESSES CAN ENHANCE DECISION-MAKING, INCREASE CUSTOMER SATISFACTION, AND DRIVE REVENUE GROWTH BY ALIGNING PRODUCTS AND SERVICES WITH CUSTOMER NEEDS WHILE ADHERING TO DATA PRIVACY AND ETHICAL CONSIDERATIONS.



# CLUSTER RESULTS

01

## CLUSTER 1

Cluster 1's centroid shows relatively high values in the 'Fresh' and 'Delicassen' features. Customers in this cluster tend to purchase more fresh produce and delicatessen items.

03

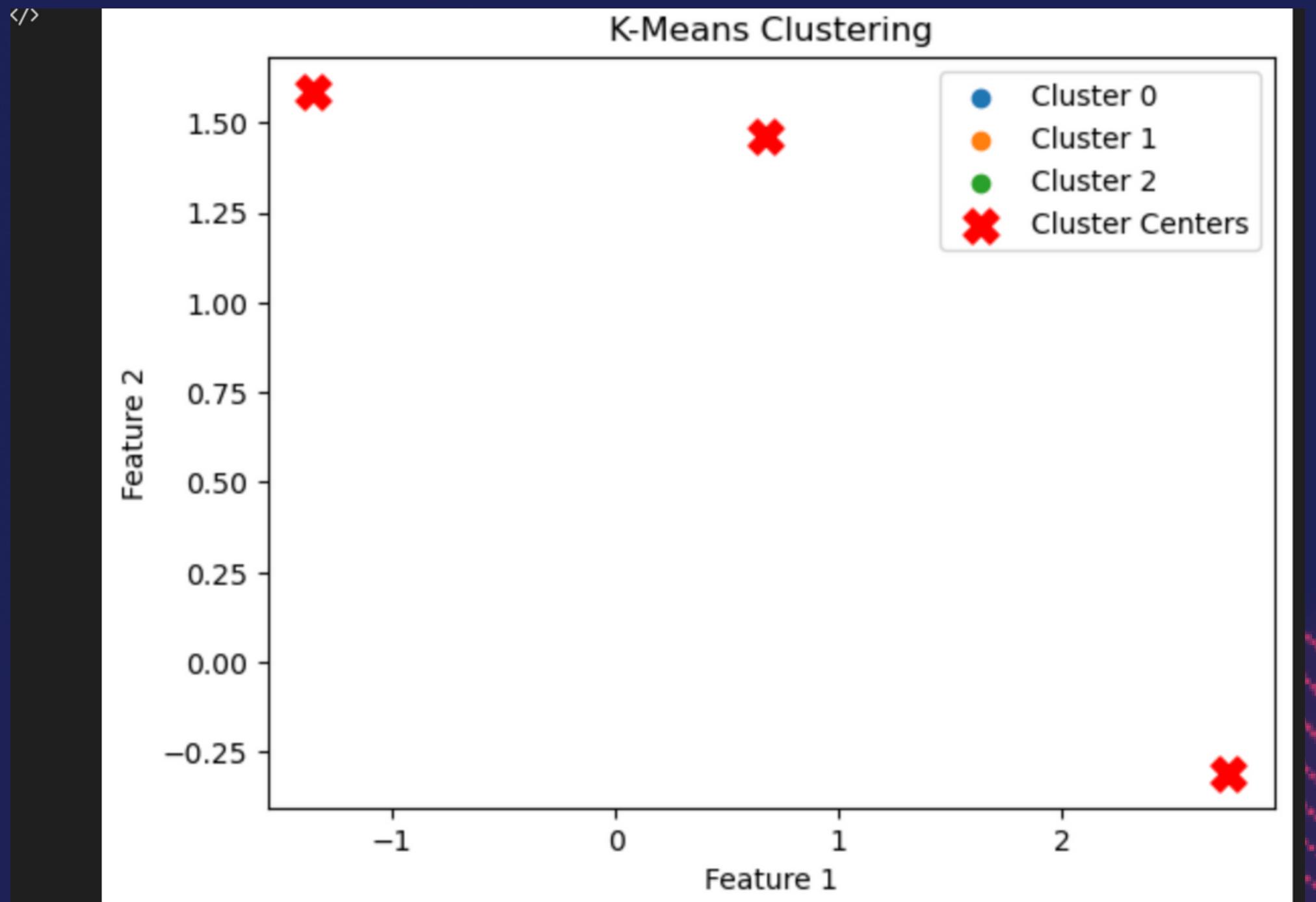
## CLUSTER 3

Cluster 3's centroid demonstrates higher values in the 'Milk' and 'Frozen' features. Customers in this cluster are likely to buy more dairy and frozen products.

02

## CLUSTER 2

- Cluster 2's centroid displays higher values in the 'Milk' and 'Grocery' features. Customers in this cluster have a preference for purchasing dairy and grocery products.



# Cluster 1: Fresh & Delicassen Lovers

- CUSTOMERS IN CLUSTER 1 EXHIBIT A PREFERENCE FOR FRESH PRODUCE AND DELICATESSEN ITEMS.
- MARKETING STRATEGY: TARGETED PROMOTIONS FOR FRESH AND DELICATESSEN PRODUCTS CAN ATTRACT AND ENGAGE CLUSTER 1 CUSTOMERS.
- INVENTORY OPTIMIZATION: ENSURE SUFFICIENT STOCK OF FRESH AND DELICATESSEN ITEMS TO MEET CLUSTER 1'S DEMAND.

Project Manager

# Cluster 2: Dairy & Grocery Enthusiasts

- CLUSTER 2 CUSTOMERS TEND TO PURCHASE MORE DAIRY AND GROCERY PRODUCTS.
- MARKETING STRATEGY: LOYALTY PROGRAMS OR REWARDS FOR PURCHASING DAIRY AND GROCERY ITEMS CAN INCREASE ENGAGEMENT.
- INVENTORY OPTIMIZATION: MAINTAIN AN APPROPRIATE INVENTORY OF DAIRY AND GROCERY PRODUCTS TO FULFILL CLUSTER 2'S PREFERENCES.

Project Manager

# **Cluster 3: Dairy & Frozen Products**

- CLUSTER 3 CUSTOMERS HAVE A LIKING FOR DAIRY AND FROZEN PRODUCTS.
- MARKETING STRATEGY: PROMOTIONAL OFFERS ON DAIRY AND FROZEN ITEMS CAN RESONATE WITH CLUSTER 3 CUSTOMERS.
- INVENTORY OPTIMIZATION: STOCK UP ON DAIRY AND FROZEN PRODUCTS TO CATER TO CLUSTER 3'S DEMANDS.

## **How can you leverage this information?**

BUSINESSES CAN TAILOR THEIR MARKETING EFFORTS TO EACH CLUSTER'S PREFERENCES. FOR CLUSTER 1, PROMOTING FRESH AND DELICATESSEN ITEMS COULD YIELD POSITIVE RESULTS. FOR CLUSTER 2, FOCUSING ON DAIRY AND GROCERY PRODUCTS MIGHT BE MORE EFFECTIVE, AND FOR CLUSTER 3, HIGHLIGHTING DAIRY AND FROZEN OFFERINGS COULD RESONATE WITH CUSTOMERS.

## **What marketing strategies could be employed ?**

Cluster 1 might respond well to targeted promotions for fresh and delicatessen items. Cluster 2 could benefit from loyalty programs focused on dairy and grocery products. Cluster 3 might engage with promotions related to dairy and frozen offerings.

## LIMITATIONS AND CAVEATS!

K-MEANS ASSUMES THAT CLUSTERS ARE LINEARLY SEPARABLE, WHICH MAY NOT HOLD FOR COMPLEX DATASETS. NON-LINEAR CLUSTERING ALGORITHMS LIKE DBSCAN OR GAUSSIAN MIXTURE MODELS COULD BE CONSIDERED FOR SUCH CASES.

# RECOMMENDATIONS BASED ON INSIGHTS

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TAILORED MARKETING STRATEGIES  
PERSONALIZED OFFERINGS  
INVENTORY OPTIMIZATION

# **Thanks for listening**



**WE HOPE THE INSIGHTS  
HELP WITH BUSINESS  
DECISIONS**